

WHAT IS CLAIMED IS:

- 1 1. A method of forming a resist layer on a non-planar surface of a substrate, the method
2 comprising:
 - 3 providing a substrate having a non-planar surface;
 - 4 placing the non-planar surface into an electrophoretic resist;
 - 5 while the non-planar surface is in the electrophoretic resist, applying an electrical voltage
6 between the substrate and the electrophoretic resist; and
 - 7 removing the non-planar surface from the electrophoretic resist.
- 1 2. The method of claim 1 wherein the non-planar surface comprises a substantially planar
2 surface with a structure formed thereon.
- 1 3. The method of claim 2 wherein the structure comprises a compliant element.
- 1 4. The method of claim 1 and further comprising:
 - 2 forming a conductive layer over the non-planar surface prior to placing the non-planar
3 surface in the electrophoretic resist; and
 - 4 patterning the electrophoretic resist after removing the non-planar surface from the
5 electrophoretic resist.
- 1 5. The method of claim 4 wherein the conductive layer comprises a seed layer, the method
2 further comprising removing the electrophoretic resist from portions of the seed layer and
3 forming a second conductive layer over portions of the seed layer not covered by the
4 electrophoretic resist.

- 1 6. The method of claim 5 wherein forming a second conductive layer comprises:
2 forming a copper layer over portions of the seed layer not covered by the electrophoretic
3 resist;
4 forming a nickel layer over the copper layer; and
5 forming a gold layer over the nickel layer.
- 1 7. The method of claim 5 wherein the substrate comprises a semiconductor wafer and
2 wherein the second conductive layer comprises a reroute layer electrically coupling a contact pad
3 formed on the semiconductor wafer to a terminal on the non-planar surface.
- 1 8. The method of claim 1 wherein the substrate includes a rear surface oppositely disposed
2 from the non-planar surface, the method further comprising protecting the rear surface from
3 wetting while the non-planar surface is placed in the electrophoretic resist.
- 1 9. The method of claim 1 and further comprising causing the non-planar surface to be
2 moved relative to the electrophoretic resist while the non-planar surface is placed in the
3 electrophoretic resist.
- 1 10. The method of claim 9 wherein the non-planar surface is rotated while the non-planar
2 surface is placed in the electrophoretic resist.
- 1 11. The method of claim 9 wherein the electrophoretic resist is stirred while the non-planar
2 surface is placed in the electrophoretic resist.
- 1 12. The method of claim 1 and further comprising heating the substrate after removing the
2 non-planar surface from the electrophoretic resist.

1 13. A method for forming a plurality of three-dimensional structures on a substrate, the
2 method comprising:
3 providing a wafer with bumps distributed on a surface of the wafer; and
4 forming a resist over the surface of the wafer including the bumps by coating the surface
5 of the wafer with an electrophoretic resist by dipping the surface of the wafer into the resist and
6 by applying an electrical voltage between the wafer and the electrophoretic resist.

1 14. The method of claim 13 and further comprising:
2 patterning the resist; and
3 forming a plurality of conductors over the surface of the wafer in accordance with the
4 patterning.

1 15. The method of claim 14 wherein the plurality of conductors electrically connect bonding
2 pads on the wafer to terminals located on the bumps.

1 16. The method of claim 13 wherein the surface of the wafer is dipped into the
2 electrophoretic resist in a horizontal arrangement of the wafer.

1 17. The method of claim 16 wherein a rear side of the wafer is protected from wetting during
2 the process of dipping into the electrophoretic resist.

1 18. The method of claim 13 wherein the wafer is caused to rotate during the coating
2 operation.

1 19. The method of claim 13 wherein a flow is produced at least below the wafer in the
2 electrophoretic resist during the coating operation.

1 20. The method of claim 19 wherein the electrophoretic resist is caused to rotate in a region
2 of the surface of the wafer.

1 21. The method of claim 20 wherein the rotation of the electrophoretic resist is produced by a
2 stirrer.

1 22. The method of claim 13 wherein the wafer is removed in a horizontal position after the
2 process of coating with the electrophoretic resist and the coating is baked thermally.